Claim 8 was also rejected under Section 112 as containing subject matter not sufficiently described in the specification. More particularly, it was suggested that the specification does not teach how the capping layer exhibits a variation in mechanical properties or how the mechanical properties vary when the capping layer is at right angles to the housing. In response, it is respectfully submitted that claim 8, as herein amended, fully complies with the requirements of Section 112 for the reasons detailed below.

More particularly, with regard to the issue of how the capping layer exhibits a variation in mechanical properties, it is noted that this feature is explained in some detail at page 2 of the instant specification, starting with the last paragraph. In summary, the capping layer exhibits a variation in mechanical properties by changing from the soft and elastically-compressible characteristics of a form to the hard and stiff (in torsion) properties of a solid material. In response to the indication that it was not understood how the mechanical properties vary when the capping layer is at right angles to the housing, it is respectfully submitted that this is not what is recited in claim 8. Rather, claim 8 clearly recites that the mechanical properties vary in a direction at right angles to a surface of the capping layer. In other words, in a direction perpendicular to the surface of the

capping layer, as one passes through the capping layer, the mechanical properties of the capping layer will vary, such as from softer to harder. As noted in the instant specification, such a variation in mechanical properties is of considerable commercial advantage, enabling the same layer to protect against shock and vibration (due to the softer parts of the layer) and to prevent damage due to torsional forces (due to the harder portions of the layer). Additionally, as also noted in the instant specification, such a configuration offers improved protection due to thermal variations, improved heat conduction, and flexibility of use. It is emphasized that what Applicants are claiming is not that the capping layer is at right angles to the housing, as suggested in the Action, but rather that the mechanical properties of the capping layer vary in this direction.

On the merits, claims 8 and 11-14 were rejected under 35 U.S.C. §102(b) as being unpatentable over Heiss, for the reasons of record. In particular, it was suggested that Heiss shows a circuit board in which the capping layer exhibits variations in mechanical properties in a direction at right angles to the housing, as supported by the cited portions of the reference.

In response, it is respectfully submitted that the cited reference, and in particular the noted portions thereof, do not appear to show or suggest any variation in mechanical properties in

a direction at right angles to the surface of the capping layer. As Applicants read this reference, it merely teaches that a non-conductive layer of silicon rubber, or a similar layer of lacquer in provided. There appears to be no indication or suggestion that the mechanical properties of these layers vary in a direction at right angles to the layer or housing. Furthermore, it is noted that claim 8 more narrowly recites that the variation of the mechanical properties is a continuous variation, a further limitation which appears to be neither shown nor suggested by the reference. As noted in the instant application, these unique characteristics are provided by the injection molding of a foam-forming reactive injection-molding material, which creates softer and harder portions within the same capping layer, and that simply providing a thin layer of silicon rubber or lacquer, as in the reference, would not achieve the unique properties disclosed and claimed in the instant application.

In view of the foregoing, it is respectfully submitted that the currently-pending claims, as herein amended, are clearly patentably distinguishable over the cited and applied reference, and that the instant application now fully complies with the requirements of Section 112. Allowance of the instant application

is therefore respectfully submitted to be justified at this time, and favorable consideration is earnestly solicited.

Respectfully submitted,

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March 22, 2001

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APPENDIX A

Amended Specification

Page 8, in the paragraph beginning on line 29, change as follows:

Subsequently, the circuit is accommodated in an injection mould composed of two halves. In the closed state, the mould defines a cavity the shape of which corresponds to the outside of the capping layer 2 to be formed. In fact, this shape is independent of the shape of the circuit, with the regions which should not be covered by the capping layer, such as the electric connections, of course being masked by the mould. After the injection mould has been closed, a foam-forming reactive injection-moulding material is injected into a gate in the mould by displacing a plunger, the temperature of the mould being 60 °C. The starting materials of the foam-forming reactive injection-moulding material, i.e. methylene diphenyl diisocyanate (tradename Desmodur 44V10B, supplier Bayer AG) and polyoxyethylene diol (tradename Baydur VPPU 1681, Bayer AG) are each circulated at 30 °C between the storage vessel and the mixing head, and just before they are injected, they are mixed under pressure in the mixing head. The presence of moisture in the mould causes the formation of carbon dioxide by a reaction with the injection-moulding material, so that foam formation takes place during reactive injection moulding.

After 1 minute, the foam-forming reactive injection-moulding material has cured and the capping layer 2 has been formed, whereafter the mould is opened and the printed circuit covered with the capping layer 2 is removed. ~~Said~~ The capping layer 2 has an average density of 600 kg/m^3, but it exhibits, in directions at right angles to the capping layer, a continuous, gradual variation of the mechanical properties. The side of the capping layer 2 facing the circuit exhibits a strong degree of foaming and hence is relatively soft and elastically compressible. In the direction from the side of the capping layer facing the circuit to the side of the capping layer facing away from the circuit, the stiffness and hardness of the capping layer increases. The side of the capping layer facing away from the circuit is at least substantially solid and has a density of 1100 kg/m^3.

APPENDIX B

Amended Claim

8. (twice amended) A printed circuit which is provided with a synthetic resin capping layer, said circuit comprising a printed circuit board having at least one electric component, and the capping layer exhibiting a variation of ~~the~~ mechanical properties in a direction at right angles to ~~the~~ a surface of the capping layer, characterized in that said variation of the mechanical properties is a continuous variation.